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The Move for Well-being in School study

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Improving children's physical self-perception through a school-based physical activity intervention: The Move for Well-being in School study

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ABSTRACT

Purpose: Physical activity at school can improve the mental health of all children – especially if it targets children's developmental needs and is carried out in a positive social climate. The purpose of the present study was to examine the effect of a 9-month school intervention focusing on physical self-worth, self-perceived sport competence, body attractiveness, social competences and global self-worth in children aged 10–13 years.

Methods: Taking self-determination theory as its starting point, the intervention was developed and pilot-tested in close co-operation with schools. It targeted 1) PE lessons, 2) in-class activity outside PE, and 3) physical activity during break-time. It used a cluster-randomized design to select 24 Danish schools either for intervention or for control. Survey data on self-perception variables, socio-demographics and physical activity was collected prior to intervention and after 9 months.

Results: A total of 2797 children were included in the analyses. All five self-perception variables increased between baseline and follow-up, and there were no significant differences between intervention and control schools. Sub-group analyses of gender, social class, body image and leisure sport revealed significant differences at baseline for most self-perception variables. For students with no leisure sport participation at the intervention schools, the follow-up results showed a more positive development for global self-worth.

Conclusions: Despite limited overall intervention effects on self-perceived competence and self-worth, the intervention appeared to diminish the gap between those groups with most and those with least self-confidence. Even though many of the new activities and approaches were implemented, some teachers were challenged to create a positive social climate.

1. Introduction

Improving the way children and young people perceive their ability to engage in physical activity (PA) can be a tool in combating population inactivity. Perceived abilities of PA are dependent on previous experience, and it is likely that the majority of the inactive population lack positive experience of PA (Fox, 2000; Raustorp, 2013). This is also true of experience with PA at school, which is often characterized by a competitive environment in which less skilled students do not always thrive. Innovative approaches are needed to improve the quality of school PA to ensure the socially inclusive environment that could fulfil individual developmental needs.

In addition to the suggested health benefits of lifelong PA engagement, experiences with PA affects how people feel about their physical capability. This, in turn, is very important for their overall mental health – not least for children and young people (Fox, 2000). Such feelings have been captured using the theoretical constructs of physical self-perceptions (PSP). Positive experiences lead to positive feelings and improve global self-esteem, which is a

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core feature in the pursuit of mental health and well-being (Fox, 2000). PSP is closely linked to improvements in areas such as fitness levels, muscle tone or physical abilities, while also having a positive impact on social well-being (Fox, 2000). Having a sense of belonging and feeling connected both to leaders/trainers/teachers and to teammates/fellow students/exercise participants is another pathway to improved self-esteem and well-being. Studies focusing on the school setting have proposed that the positive effect of PA on well-being is dependent on the social context and on interactions between students and their teachers, parents and coaches (Bailey, Hillman, Arent, & Petitpas, 2013).

Recently, Lubans et al. (2016a) offered a conceptual model describing different pathways or mechanisms between PA and various mental health outcomes. The model posits three main hypotheses: a neurobiological hypothesis, a psychosocial hypothesis, and a behavioural hypothesis. In the current study, we will focus on the psychosocial hypothesis, which opens up a range of possible mechanisms. A potential psychosocial mechanism is described in Self-Determination Theory (SDT) (Deci & Ryan, 1985; Ryan & Deci, 2000). SDT posits that an activity will increase an individual's motivation and well-being if the activity provides opportunities a) for feeling socially connected, b) for experiencing mastery in the physical domain, and c) satisfies the need for a sense of autonomy and is meaningful for the individual (Lubans et al., 2016a; Teixeira, Carraça, Markland, Silva, & Ryan, 2012).

In the current study, SDT was used as a framework to develop the PA intervention. The hypothesis is that school PA, conducted in an inclusive social climate, with a personal development perspective and incorporating co-creation with students, will lead to more positive experiences and improvement of social and physical abilities. This would be manifested in an improved physical and social self-perception. The current study will assess the overall intervention effect on young people aged 10–13 years as regards the primary outcome, physical self-worth, and four additional self-perception variables: self-perceived sport competence, body attractiveness, social competence and global self-worth.

2. Methods

2.1. Study design, setting and participants

The Move for Well-being in School study (MWS) is a Danish intervention study aiming at increasing psychosocial well-being among school children from 4th to 6th year. The study is designed and conducted using the MRC framework for the development of complex interventions (Craig et al., 2008) as a guide, and the protocol is published in detail elsewhere (Smedegaard, Christiansen, Lund-Cramer, Bredahl, & Skovgaard, 2016). In brief, the study applies a cluster randomized controlled design to a total of 24 schools that are randomized at school level to represent either intervention or control. The decision to participate in the study was taken at school management level, and participation involved all teachers and students in three year groups (with the exception of one school, which participated only with 4th and 5th year groups). The school size, geographic location and socio-economic status in the school district varied between schools from smaller schools in the rural part of the country to larger schools in suburban and inner cities. All schools in the project are 100% publicly funded.

A total of 3124 students from 4th, 5th and 6th year groups (10–13 years old) were eligible to enter the study (Fig. 1). At baseline, 192 eligible students (7%) did not participate due either to absence from school on the day of the survey or to a lack of parental or personal consent (n = 16). For the follow-up survey, 307 students (10%) did not participate because they had moved to another school between baseline and follow-up (n = 79), were absent on the day of the survey (n = 213), or had not given parental or personal consent (n = 15).

To enhance the comparability between descriptive and explanatory analyses, observations were not included in the final dataset if there was a missing value relevant for any of the analyses. This meant that, to be included in the final dataset, students had to provide data on all independent variables at baseline, and data on all dependent variables for at least one measurement (baseline or follow-up). This resulted in a final dataset with 5301 observations (baseline or follow-up) from 2797 students (90% of the eligible students) in 144 classes and 24 schools.

2.2. Intervention

The physical activity intervention programme was grounded in SDT and designed to target the three innate psychological needs: competence, autonomy and relatedness in order to improve intrinsic motivation for physical activity for all students (Deci & Ryan, 1985). Based on SDT, the intervention programme strived to improve the quality of the activities conducted and the social and pedagogical climate in which they were performed. For this reason, the deliverers of the intervention, teachers and pedagogues teaching 4th to 6th year, were equipped with a *tailored activity programme*, including educational materials, planning guides and PE lesson plans for incorporating PA throughout the school day. The *tailored activity programme* was supported by a *competency development programme* consisting of four full-day workshops focusing on the underlying theoretical approach and opportunities to try out core activities in practice. One of the workshops was conducted at each school and involved both teachers and students. At each school, an internal *coordination group* guided and motivated the implementation of the intervention programme, receiving regular support from the research group via biweekly information e-mails and two supervision visits during the intervention period.

The intervention programme consisted of initiatives targeting four settings for school-based physical activity: 1) PE classes, 2) in-class activities, 3) break-time activities, and 4) theme days. In PE, participating schools undertook to run a minimum of 6 out of 8 specially designed courses lasting 4 × 90 min during the course of the school year. Central features were included across all courses. These involved a) students working in teams, b) ensuring a high degree of student co-creation through choices, reflection and feedback, and c) focusing on individual skills development rather than on competition. In-class activities consisted of a minimum of two daily 5-min activity breaks. The focus was on inclusion and doing activities together in the class. The proposed activities ranged from those that were highly energetic to massage and mindfulness, and teachers were encouraged to involve students in planning and instructing. In relation to break-times, each school was provided with an assorted bag of play and activity equipment to be used at least three times per week (3 × 30 min) to initiate a variety of activities supported by teachers and pedagogues (teacher assistants). Furthermore, schools were encouraged to introduce initiatives promoting activity, such as opening indoor areas for activities, or making rules for limited use of electronic devices during break-times. Lastly, three theme days distributed across the school year provided an opportunity to involve students in the development of activities in all settings and to focus on an inclusive social climate for physical activity at school.

The control schools were instructed to continue their normal practice. However, an extensive national school reform was initiated in August 2014 and brought with it alterations at many schools. One of these was a regulation to include an average of 45 min of PA each school day for all year groups at public schools.

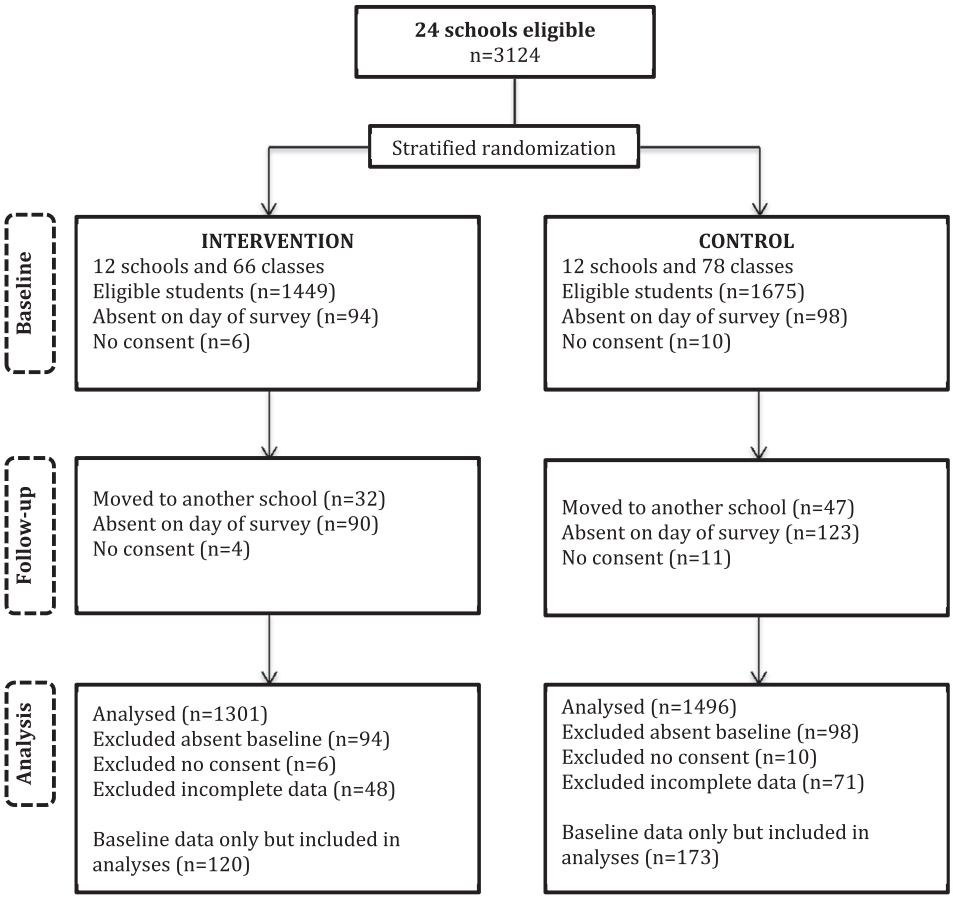

Fig. 1. Flow diagram of participating students.

2.3. Data collection

An online baseline survey was conducted during school hours at the beginning of the school year (August 2015) with the participating students and repeated nine months later at the end of the school year (May/June 2016). Physical self-perception was measured using the subscales 'self-perceived sports competence', 'body attractiveness', and 'physical self-worth' from the Children's Physical Self-Perception Profile (C-PSPP), with 'physical self-worth' serving as the primary outcome measure (Fox & Corbin, 1989; Whitehead, 1995). The 'self-perceived social competence', and 'global self-worth' subscales from the Self-Perception Profile for Children (SPPC) were included to measure aspects of psychosocial self-perception and self-esteem (Harter, 2012). The SPPC and C-PSPP are widely used and found to be valid and reliable (Harter, 2012; Muris, Meesters, & Fijen, 2003; Welk & Eklund, 2005). The test-retest reliability of the scales have been found to be between 0.68 and 0.91 (Muris et al., 2003; Welk, Corbin, Dowell, & Harris, 1997; Whitehead, 1995).

All scales in the SPPC and C-PSPP are calculated as the mean of six items. Each item consists of two statements, e.g. *"(1) Some kids feel that they are very good at their school work, (2) other kids worry about whether they can do the school work assigned to them"*. After choosing the most fitting statement, the children indicated whether the chosen statement was "sort of true" or "really true" for them. Each item was scored on a four-point scale with a score of one indicating the lowest perceived competence, and a score of four reflecting the highest level of competence. The internal reliability (Cronbach's alpha) for the scales have been found to be between 0.77 and 0.94 (Muris et al., 2003; Welk et al., 1997; Whitehead, 1995).

At baseline, students provided information on gender, primary language spoken at home (recoded to Danish as native language or not), and parental occupation, which was recoded into family social class (Christensen et al., 2014) in three categories (higher, medium, lower). School year group (year 4, year 5 or year 6) was obtained from school records. The perception of body image was measured using The Children's Body Image Scale (CBIS). The CIBS consists of 7 photographic figures appropriate to age and gender, representing standard percentile curves for BMI for healthy children (Truby & Paxton, 2002).

2.4. Statistical analyses

The data were analysed using Stata version 14.2. Associations between the outcomes and independent variables were examined using linear mixed models, including random effects to account for any clustering of observations within student responses, within class responses and within school responses. The intraclass correlation coefficient (ICC) was calculated to determine the degree of clustering. Interaction analyses were used to assess differential effects between subgroups, and likelihood ratio tests were used to test statistical significance. Age, gender, social class, leisure sport participation and body image were chosen as the five most relevant potential effect modifiers. Plots were constructed in R (R Development Core Team, 2011) with the 'effects' library (Fox, 2003). Students had to respond at baseline to be included in the analyses, since the independent variables were measured at

baseline; missing values for follow-up measures were allowed. All analyses followed the intention-to-treat principle.

2.5. Ethical approval

Prior to the first data collection, students and their parents received information about the nature and procedure of the study. Information was delivered as a personal message to the parents through the school's intranet, and it was emphasized that participation was voluntary, that parents and students could withdraw consent at any time, and that data would be treated confidentially and anonymously. Students were included in the study unless their parents or the students themselves withdrew consent (Spence, White, Adamson, & Matthews, 2015).

All data are handled in accordance with Danish law for data protection, and the project is registered and approved by the Danish Data Protection Agency, the National Committee on Health Research Ethics, and through the ISRCTN registry (DOI 0.1186/ISRCTN12496336).

3. Results

3.1. Participants

Descriptive baseline characteristics of the intervention and control groups are presented in Table 1. There was an even distribution between gender and across the three year groups, but more students from the intervention group attended year 4 and 5 than from the control group ($p = .04$). A total of 41.0% of the students' families were in the upper-middle social class, 47.2% in the middle, and 11.8% in the lower-middle social class. There was a higher percentage of students from the intervention group who had parents from the higher social class ($p = .058$), but this had borderline significance. Most students gave Danish as their native language (93.3%), attended leisure sport activities (75.8%), and had a self-perceived body image within the range of a normal weight status (86.0%), with no (statistically significant) differences between the intervention and the control group.

3.2. Intervention effect

A thorough process evaluation based on teacher questionnaire showed that all schools implemented the intervention program components, and despite variations between schools the quantitative set goals were almost fulfilled. Qualitative observations, interviews and written statements in the questionnaire revealed however, that some teachers were challenged to live up to the pedagogical principles and focus areas (Smedegaard, Brondeel, Christiansen, & Skovgaard, 2017).

Table 2 shows self-perception measures at baseline and follow-up for the intervention and control groups and the intervention effect, estimated by the difference within differences adjusted for the clustering of observations within students, classes and schools. The ICC was small, ranging between 0.2% and 2% for the school level, and between 0.5% and 4% for the class level. During the nine months of follow-up, the mean of all self-perception outcome measures increased, both in the intervention and the control group. For the primary outcome, physical self-worth, the increase during the follow-up period was 0.11 in the intervention group and 0.09 in the control group, with an intervention effect of 0.02 (95% confidence interval (CI): −0.03; 0.07). None of the self-perception outcomes resulted in a significant intervention effect, but the self-perception of sports competence had the largest intervention effect at 0.03 (95% CI: −0.01; 0.08), and global self-worth had the lowest at 0.00 (−0.046; 0.051). Sensitivity analyses were conducted adjusting for gender, year group, social class, leisure sport and body image, but it did not alter the estimated intervention effects.

3.3. Differential effect for subgroups

The analyses of differential effects for subgroups (boys vs girls; 4th vs 5th vs 6th year group; upper-middle vs middle vs lower-middle class; leisure sport participation vs non-participation; and each level of the body image scale) were conducted for each of the five self-perception variables and presented in Fig. 2 for the primary outcome only. The analyses revealed a consistent association between most subgroups and physical self-worth (PSW) at baseline and a consolidation of the association at follow-up. In detail, boys had higher PSW at baseline ($p < .001$) and the difference between boys and girls was increased in the control group at follow-up ($p < .05$) (Fig. 2a); students from higher-middle social class families had higher PSW than the middle and lower-middle social class group ($p < .001$) and a slightly more positive evolution (Fig. 2c); students with a leaner self-perceived body image had a higher PSW ($p < .001$), which increased in groups with leaner self-image in the control group and in all students in the intervention group (Fig. 2d); students participating in leisure sport had higher PSW ($p < .001$), and the difference in PSW increased for the control group (Fig. 2e). The only subgroup not consistently associated with PSW was year group (Fig. 2b).

For the four remaining variables, a total of 24 analyses were conducted to test for interaction effects between the self-perception variables and the intervention, which resulted in one significant interaction effect ($p = .033$) between the intervention and leisure sport participation for global self-worth. Those students from the intervention group not participating in leisure sport improved their 'global self-worth' relatively more than their counterparts at the control schools (Fig. 3).

Table 1
Baseline characteristics of participants included in the analyses.

	Intervention (n = 1301)	Control (n = 1496)	Total (n = 2797)
Boys (%)	50.7	51.5	51.1
Year group (%)			
4th (10 years)	33.7	31.6	32.6
5th (11 years)	36.7	34.2	35.4
6th (12 years)	29.7	34.2	32.1
Family Social Class (%)			
Upper-middle	43.0	39.2	41.0
Middle	46.3	48.0	47.2
Lower-middle	10.7	12.8	11.8
Danish native language (%)	92.8	93.3	93.1
Leisure time sport participation (%)	77.1	75.8	76.4
Self-perceived overweight (%)	13.9	14.0	14.0

4. Discussion

Physical self-worth, self-perceived sports competence, body attractiveness, self-perceived social competence and global self-worth increased for both the intervention and control group during the 9-month follow-up. The increase was larger for the intervention group, but the effect was not statistically significant. The largest intervention effect was seen for self-perceived sport competences (coefficient = 0.03 and CI 95% = −0.01; 0.08). The subgroup analyses showed a tendency towards a more positive effect on physical self-worth for subgroups with lower baseline levels of physical self-worth i.e. girls, students from lower social class

Table 2
Self-perception at baseline and follow-up including intervention effects.

	Physical self-worth	Sports competence	Body attractiveness	Social competence	Global self-worth
Baseline – Mean (SD)					
Intervention	3.12 (0.69)	2.95 (0.64)	2.75 (0.78)	2.94 (0.77)	3.28 (0.68)
Control	3.12 (0.70)	2.95 (0.64)	2.75 (0.78)	2.92 (0.76)	3.28 (0.68)
Follow-up – Mean (SD)					
Intervention	3.22 (0.71)	3.05 (0.65)	2.82 (0.83)	3.03 (0.78)	3.36 (0.67)
Control	3.21 (0.74)	3.03 (0.66)	2.80 (0.82)	2.99 (0.78)	3.35 (0.69)
Intervention effect [a]					
Coefficient	0.02	0.03	0.01	0.02	0.00
Confidence interval	(-0.03, 0.07)	(-0.01, 0.08)	(-0.04, 0.07)	(-0.03, 0.07)	(-0.05, 0.05)

N = 2797.
[a] Difference in growth (differences) from baseline to follow-up between intervention and control group; students, classes and schools were included as random effects to account for clustering.

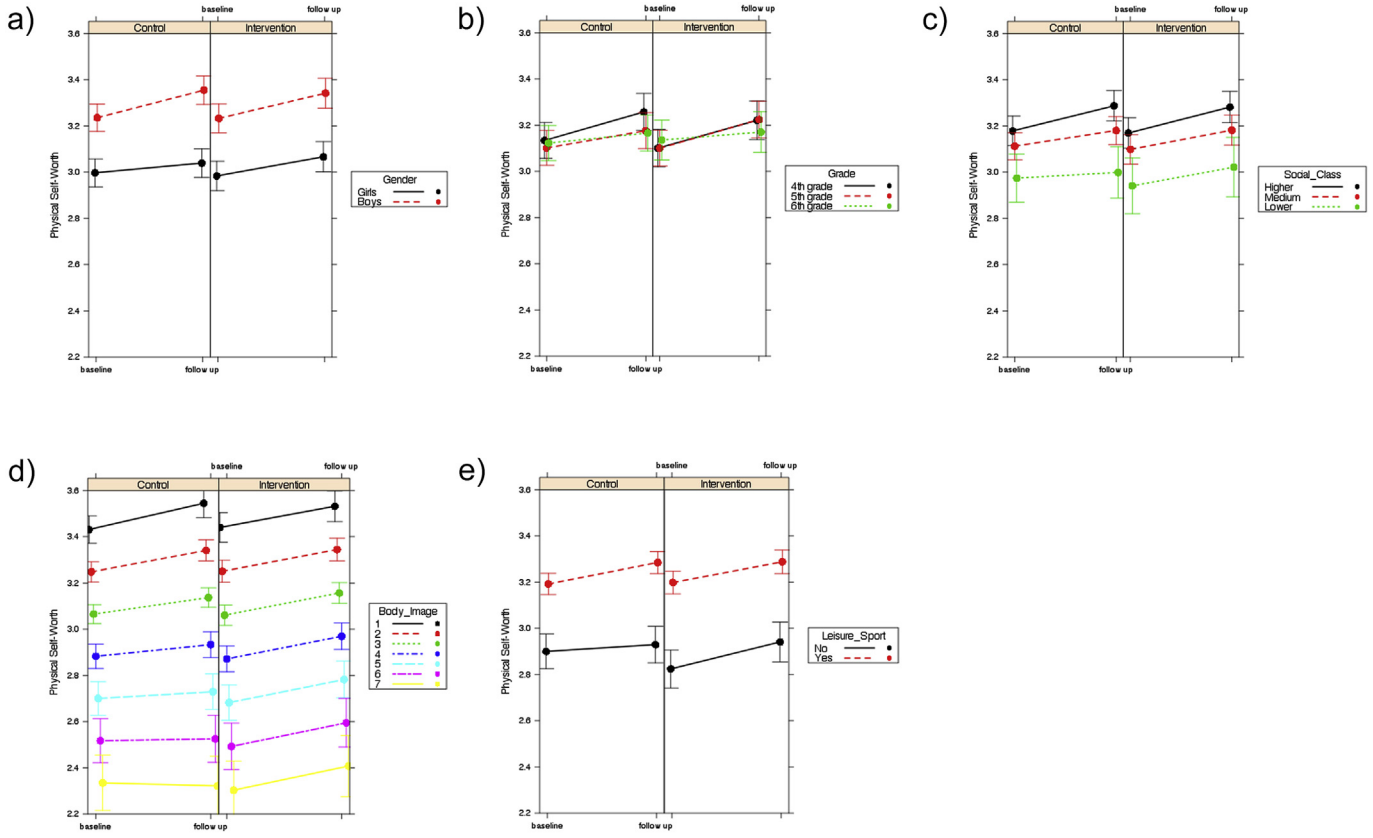

Fig. 2. The analyses of differential effects on physical self-worth for the five subgroups: a) boys vs girls; b) 4th vs 5th vs 6th grade level; c) higher vs medium vs lower social class; d) each level of the body image scale; and e) leisure sport participation vs no-participation.

families, perceived overweight students, together with students inactive in non-leisure sports. For the global self-worth measure, there was no difference between intervention and control. There was, however, a significant interaction between leisure-time sport participation and the intervention, which indicated a slightly higher increase in global self-worth for students not participating in leisure-time sports, compared to their counterparts.

The reasons for not finding an overall significant effect of the intervention could be due to several factors, outlined and described in greater detail below:

1. The programme and activities provided were not effective in improving physical self-perception.
2. The programme was not delivered as intended at the school level.
3. The control group improved as well, due to self-initiated activities.
4. The selected measurements were not sensitive or specific enough to detect actual changes.

4.1. The programme and activities provided were not effective in improving physical self-perception

The underlying mechanism, hypothesized in the current study, was that more school physical activity conducted in an inclusive social climate, with a personal development perspective and

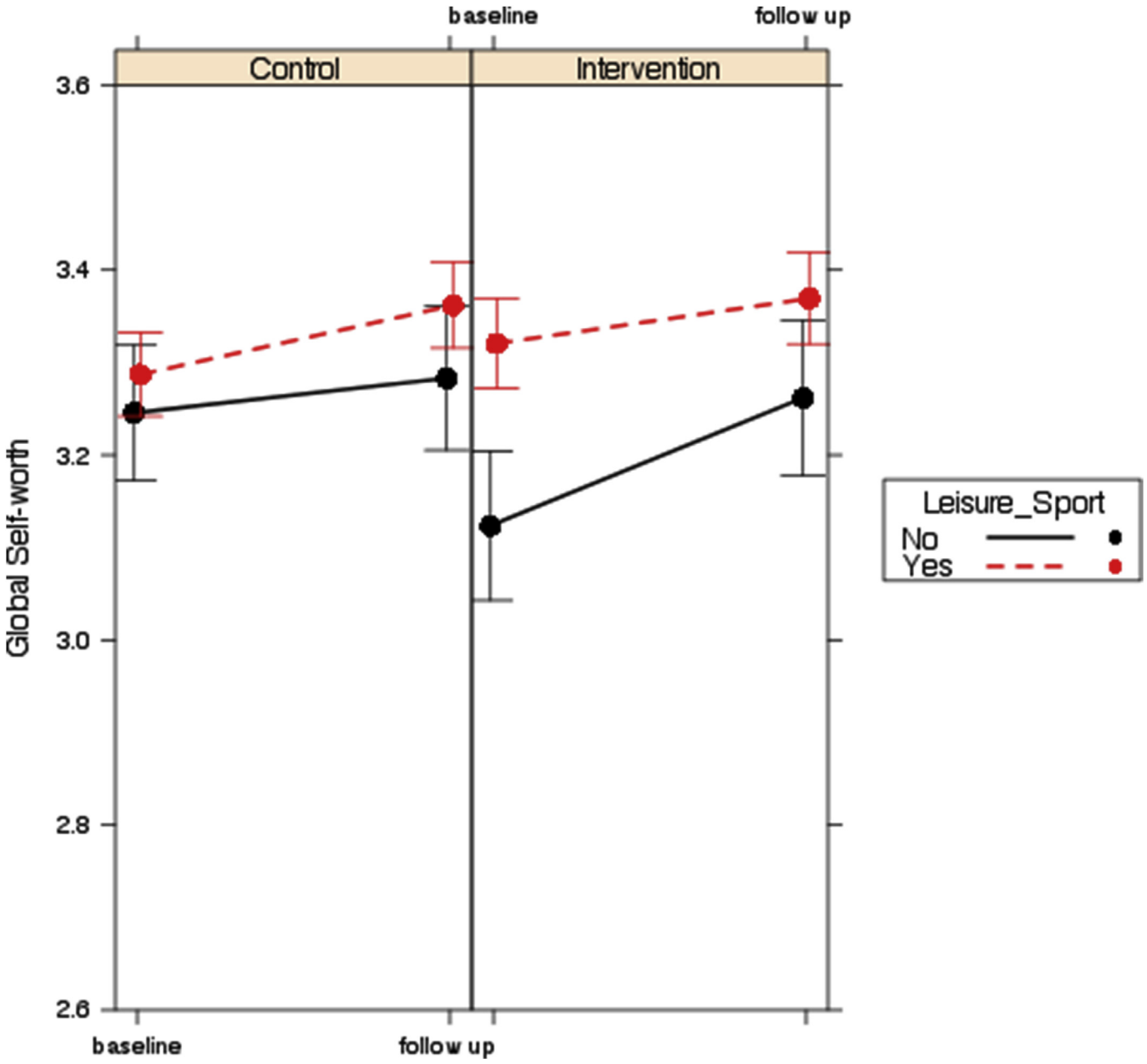

Fig. 3. The analyses of differential effects on global self-worth for the subgroup defined by leisure sport participation vs non-participation.

relying on co-creation between students and teachers, would result in positive experience of physical activity and improvement in perceived competence and self-worth. A similar approach can be found in studies of team-building activities, where groups work together to solve a given task. Ebbeck and Gibbons (1998) evaluated the Team Building through Physical Challenges programme (TBPC) and found an increase in self-perceived sports competence from 3.12 to 3.66 for boys and from 1.86 to 2.96 for girls after an eight-month programme. The authors emphasize that, "… the *TBPC program was characterized by small, coeducational groups of pupils, who work together in a supportive, child-centered environment to achieve challenging tasks.*" (Ebbeck & Gibbons, 1998).

This resembles the approach in the current study. The effect on self-perceived sports competence was also investigated in an aerobic training programme for girls (Marsh & Peart, 1988). Whereas the girls all received almost the same aerobic training, in the intervention group the activities were designed to promote teamwork, and the instructor manipulated the experience by verbally prompting messages focusing on social cohesion. The girls in the intervention group increased their self-perceived sports competence, while that of the girls in the competitive control group decreased. In the current study, the lack of effect could be due to some teachers relying on the activities alone and neglecting the creation of an inclusive social climate during the activity. Qualitative observations and interviews with PE teachers gave indications that time constraints led some teachers to focus on the basic organization of the activities and not on the accompanying pedagogical approach (Nørgaard Mortensen, 2016). Another explanation could relate to the choice of activities promoted in the current study. The aim was to increase variation in activities 1) by selecting PE themes traditionally seen as less common (e.g. parkour, disc golf, creative dance and alternative ball games), 2) by promoting

alternative activities during break-times and providing access to unfixed equipment (e.g. diabolo, kendama and juggling balls), and 3) by introducing various activities in the classroom that the students were not familiar with. The introduction of new activities would not necessarily create increased PSP if they were not accompanied by appropriate pedagogical approaches and a change in social climate. This could be particularly true for students with lower PSP. Other intervention studies have focused on involving students in choosing, designing and/or conducting activities. Lindwall and Lindgren (2005) let participating girls choose their preferred activities, which, it was hypothesized, would to lead to a greater sense of control and enjoyment. Other studies have used fitness activities that make fewer demands on tactical and sport-specific skills and where improvements are more noticeable (Lubans, Plotnikoff, & Lubans, 2012; Lubans et al., 2016b). Schneider, Dunton, and Cooper (2008) found an effect on global self-esteem in a 9-month fitness study, but only for the group of participants who increased their fitness levels. The importance of making objective progress in competence was not assessed in the current study (e.g. fundamental movement skills) but might be an area of future focus.

4.2. The programme was not delivered as intended at the school level

Intervention delivery is a crucial factor, and given that the intervention included all 4th to 6th year pupils and their teachers, there will naturally be variations within and between schools. This is reported in detail elsewhere (Smedegaard et al., 2017), but overall the intervention components were well received and most schools did execute a satisfying volume of activities. At the end of the year 93% of the teachers would recommend the programme to another school. At the same time 90% of teachers stated that they carried out in-class activities and 50% facilitated break-time activities during a typical week. A total of 90% of the PE teachers used the *tailored activity programme* for at least half of the lessons (teacher response rate: 67%). The lack of effect is therefore unlikely to be caused by overall volume, but the quality of delivery and compliance with the pedagogical principles could be an explanation.

4.3. The control group improved as well, due to self-initiated activities

Design issues relate to either reactive behaviour of the control group or ceiling effect for many students. The invitational character of the recruitment to the intervention means that all 24 schools had a similar understanding of the importance of physical activity as part of the ideal school, and an initial perception that the approach of MWS was advantageous or preferable. This fact could increase the chance of ceiling effect (because schools were already aware of the challenges and of possible solutions), and might mean that the control schools could come up with equally effective programmes. Based on qualitative evaluation with one class in each year group at all schools, several of the students at the control schools reported approaches with similar activities and pedagogical principles taking place in break-time, in-class and PE. The national regulation of 45 min of PA each school day also feeds into this explanation, as schools were obliged to offer physical activities including all students.

4.4. The selected measurements were not sensitive or specific enough to detect actual changes

In general PSP has been found to be a relatively stable measure across the years of early adolescence (Babic et al., 2014; Raustorp, Mattsson, Svensson, & Ståhle, 2006). The baseline values of PSP variables were in the middle range compared to similar studies (normal population at the same age). The average for self-perceived sport competences was 2.95 in the current study, compared to 2.49 in Canadian 6th and 7th year students (Ebbeck & Gibbons, 1998), 2.84 in Australian 8th to 10th year students (Rose, Hands, & Larkin, 2012), and 2.95 in Dutch children aged between 8 and 14 years (Muris et al., 2003). In the review mentioned above, the majority of studies that had been effective in improving PSP outcomes were conducted on special groups (overweight, inactive or behaviourally challenged) (Lubans et al., 2016a). As an example, Lindwall and Lindgren (2005) reported an increase in self-perceived sports competence in the intervention group from 2.15 to 2.42 following a 6-month physical activity programme for inactive girls. This indicates that large-scale real-world interventions in the normal population face a tough challenge in increasing mental health outcomes solely through an increase or change in physical activity. The subgroup analyses in the current study indicate a more positive evolution in physical self-worth and other PSP variables for the least physical confident groups including girls. These results should encourage future investigation of how to develop more inclusive social environments for PA in schools, where all children have positive experiences moving, learning and playing.

4.5. Strengths and limitations

The design of the current study, with a large number of participating schools and students, and a randomized controlled design with a long follow-up period of nine months are considered strengths. This large-scale approach increases external validity and underlines the challenges real-world interventions are facing. Despite the general homogeneity between schools in Denmark, all twelve schools in the intervention group have different cultures, in-school competences and resources to implement the programme. Future studies on MWS will consider the individual challenges of the schools, and evaluate the process of the programme.

Physical activity was not measured objectively. The focus was on the psychosocial mechanism and not on duration or intensity of actual physical activities. However, an objective measure of PA would have improved our knowledge of changes in activities conducted both by intervention and by control schools. This could have been further enhanced by systematic observation of social climate and of the teachers' approaches to teaching and setting up activities.

We also acknowledge the limitation of the survey tools applied. Even though we used validated PSP questionnaires, went through a thorough translation procedure, and assisted the schools and students in filling in the questionnaires, there is a risk of misunderstanding, of social desirability bias and of random response. Self-perceptions can be especially hard to measure, as they demand a certain degree of self-reflection. Finally, the five subgroups used for differential effect analyses were not pre-specified.

5. Conclusion

Despite the limited overall intervention effect on self-perceived competences and self-worth, the intervention tended to diminish the gap between groups with the most and least self-confidence. Even though many of the new activities and approaches were implemented, some teachers were challenged to create a supportive and social inclusive climate. Further investigation of how to promote a supportive and inclusive climate for PA in schools, where all children have positive experiences, is still warranted.

Acknowledgements

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Appendix A. Supplementary data

Supplementary data related to this article can be found at https://doi.org/10.1016/j.mhpa.2017.12.005.

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